

Edited KSA Listing

CLASS: Senior Mechanical Engineer

NOTE: Each position within this classification may be required to possess all or some of these knowledge, skills or abilities.

	Knowledge of:
K1	Comprehensive knowledge of designing and preparing plans for mechanical engineering aspects (e.g., heating, ventilating, air-conditioning [HVAC], instrumentation, pumping, lubrication, and piping, etc.) of projects by utilizing current industry standards in order to provide information to institutions, contractors, suppliers, etc. for quality construction work and accurate as-built drawings.
K2	Comprehensive knowledge of mechanical engineering fundamentals (e.g., thermodynamics, hydraulics, sewage and water systems, water purification and drainage systems, heat transfer, etc.) and mathematics in order to perform various job-functions (e.g., design, construction support, design review, etc.).
K3	Comprehensive knowledge of terminology, various codes, safety orders, rules, laws, regulations, departmental policies and procedures, governing the design and installation of mechanical and plumbing equipment (e.g., heating, ventilating, air-conditioning [HVAC], instrumentation, pumping, lubrication, and piping, etc.) in order to provide design, construction support, and design review, etc.
K4	Basic knowledge of cost estimates for mechanical engineering aspects (e.g., heating, ventilating, air-conditioning [HVAC], instrumentation, pumping, lubrication, and piping, etc.) in order to provide cost effective design work in preparation of plans and specifications.
K5	General knowledge of structural engineering, electrical engineering, and architectural elements as related to buildings to properly coordinate mechanical aspects as it relates to multi-discipline design work.
K6	Basic knowledge of Computer Aided Drafting and Design (CADD) and engineering applications, software and hardware in order to provide accurate design work in preparation preliminary plans and working drawings.
K7	Basic knowledge of specification writing for mechanical engineering aspects (e.g., heating, ventilating, air-conditioning [HVAC], instrumentation, pumping, lubrication, and piping, etc.) of projects by utilizing current industry standards in order to provide information to institutions, contractors, suppliers, etc. for quality construction work and accurate as-built information.
K8	Basic knowledge of procedures of building construction as it relates to the installation of mechanical and plumbing equipment (e.g., heating, ventilating, air-conditioning [HVAC], instrumentation, pumping, lubrication, and piping, etc.) utilizing current industry standards in order to provide effective design and construction support.

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	Skill to:
S1	Basic skill in communicating (verbal, written, and/or graphical) project requirements in a training capacity to other members of the work unit to produce plans, specifications and reports on a wide variety of mechanical projects.
S2	Basic skill in clearly communicating ideas effectively (verbal, written, and/or graphical) while maintaining cooperative relations with others in order to provide information to staff and vendors, etc.
S3	Comprehensive skill in analyzing and interpreting data and situations accurately in order to perform design work, write technical reports, provide alternatives and recommendations for management decisions and construction support, etc.
S4	Comprehensive skill to prepare and accurately interpret and review plans, specifications, and estimates for heating, ventilating, air-conditioning (HVAC), refrigeration, plumbing, sanitary, water, water purification and drainage systems and steam generating plants in common use in order to provide information to institutions, contractors, other designers, suppliers, etc. for quality construction work and accurate as-built drawings.
S5	Comprehensive skill to make correct computations in order to provide accurate information related to plans and specifications.
S6	Comprehensive skill in preparing and maintaining mechanical engineering records, notes, data, etc. to provide direction, information and recommendations on a wide variety of issues.
S7	Basic skill to make neat and accurate lettering, drawings, and technical sketches in order to provide accurate information related to plans and specifications.
S8	Comprehensive skill to direct or inspect field construction operations or make field inspections and test of mechanical installations in order to achieve conformity to plans and specifications during construction phase of project.
S9	Comprehensive skill in prioritizing and organizing multiple projects and assignments in order to effectively meet schedules.
S10	Comprehensive skill in mechanical design in order to produce construction documents that meet the needs of the program as well as the departmental design criteria and building codes.